Preventing Tooth Decay
Facts about Community Water Fluoridation

Good oral health—a mouth and teeth without cavities or other oral diseases—is an important part of good health and an essential part of our everyday lives. Having healthy teeth improves our ability to speak, smile, smell, taste, chew, swallow, and convey our feelings and emotions through facial expressions. Overall, the dental health of children and adults in the United States is better than ever. However, for some of our most vulnerable citizens—poor children, the elderly, and many members of racial and ethnic minority groups—maintaining a healthy mouth and teeth can be challenging.

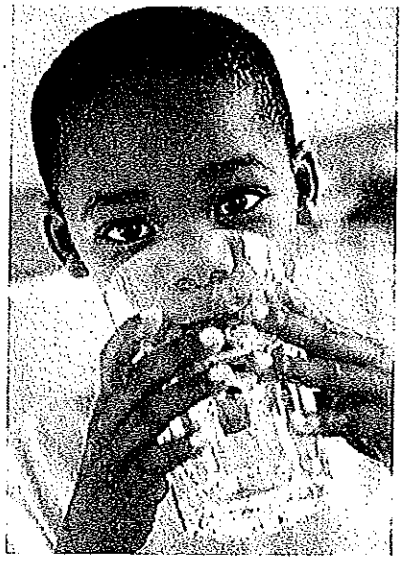
Fortunately, community water fluoridation has been shown to be safe and effective in reducing the number and severity of cavities and is a major reason that Americans today have better overall dental health. Regular dental care also helps achieve good oral health—but the most needy may not have access to such care. The Centers for Disease Control and Prevention offers the following answers to your questions about the practice of community water fluoridation.

What is community water fluoridation (CWF)?
Community water fluoridation is the practice of adding a small amount of fluoride to the water supply.

Why do communities practice CWF?
Fluoride prevents tooth decay by keeping tooth surfaces (the outer enamel layer) strong and solid. Almost all water contains some naturally occurring fluoride, but usually at levels too low to prevent tooth decay and improve oral health. Thousands of communities in the U.S. and around the world choose to add fluoride to their water in order to prevent tooth decay. In fact, the practice of CWF prevents about 25% of tooth decay in children and adults.

Is CWF safe?
Yes. CWF has been used safely and effectively since the 1940s. Over many years, panels of health and scientific experts have reviewed and upheld both the safety and the effectiveness of CWF.

Who benefits from CWF?
Everyone's teeth can experience decay throughout life, so everyone can benefit from CWF.



Have different racial and ethnic groups benefited from fluoridation?
Yes. Different racial and ethnic groups, including African Americans and Hispanics, have benefited from fluoride and CWF. Over the past 20 years, the decline in tooth decay has occurred across racial and ethnic groups, but it has been greater for blacks and whites than for Hispanics. Information from two of the most recent national health surveys, shown in Table 1 of this fact sheet, illustrates this decline in tooth decay.

Is there such a thing as too much fluoride in drinking water?
Rarely, water may contain high levels of naturally occurring fluoride. Under the Safe Water Drinking Act, the Environmental Protection Agency (EPA) sets standards for the highest amount of fluoride allowed. These standards are set to protect against risks from exposure to too much fluoride. This amount is higher than the amount of fluoride that water systems add in order to prevent tooth decay.

Are there other sources of fluoride besides drinking water?
Yes. The success of community water fluoridation led to the development of other sources of fluoride such as toothpaste, rinses, and fluoride-containing products applied or prescribed by dental professionals. The increase in sources of fluoride has been accompanied by an overall increase in dental fluorosis, the vast majority of which is mild. It is important to note, however, that even when people have access to other sources of fluoride, fluoridated drinking water provides benefits.

What is dental fluorosis?
Dental fluorosis is a change in the appearance of the tooth's enamel. In the United States, most dental fluorosis (more than 90 percent in the most recent national survey) is mild or very mild. Fluorosis appears as faint white lines or white spots on the tooth's surface. These markings develop when young children consume more fluoride than is needed to prevent tooth decay, from any source, during the years when teeth are forming under the gums—birth through 8 years of age. The severe form of dental fluorosis can result in visible changes to the tooth structure, with staining and pitting of the tooth surface. Fortunately, it is rare in the United States. In the most recent national survey, severe dental fluorosis among adolescents could not be estimated, because there were too few cases.

Do all groups have the same amount of dental fluorosis?
No. Information from a recent national health survey found that approximately 1 of 3 non-Hispanic blacks aged 6-49 years had teeth with some dental fluorosis, compared with 1 of 5 non-Hispanic whites. Approximately 90% of fluorosis was the very mild to mild forms. Scientists are not sure of the reasons for these differences in fluorosis and are continuing to monitor tooth decay, dental fluorosis, and water fluoridation levels among all Americans.

What is the government doing to prevent dental fluorosis?
Recently, the U.S. Department of Health and Human Services (HHS) proposed lowering the recommended amount of fluoride used for water fluoridation to 0.7 milligrams of fluoride per liter of water. The reasons for this change include:

- Young children have more sources of fluoride than they did when water fluoridation was first introduced in the United States in the 1940s.
- As previously noted, the increase in additional sources of fluoride—including fluoride toothpaste when swallowed and prescription supplements—has been accompanied by an overall increase in dental fluorosis.

This new recommendation reflects a shared understanding of the latest science about fluoride by HHS and EPA scientists. It will keep the cavity-fighting benefits of fluoridated water while limiting dental fluorosis.

What can parents do to prevent dental fluorosis?
Parents can take several steps to lessen the chance of their children's teeth having dental fluorosis. Parents can use only a pea-sized amount of toothpaste on the brush, and supervise the child's brushing so the paste is not swallowed. For more information on the best use of fluoride products, visit www.cdc.gov/OralHealth/publications/factsheets/brushup.htm.

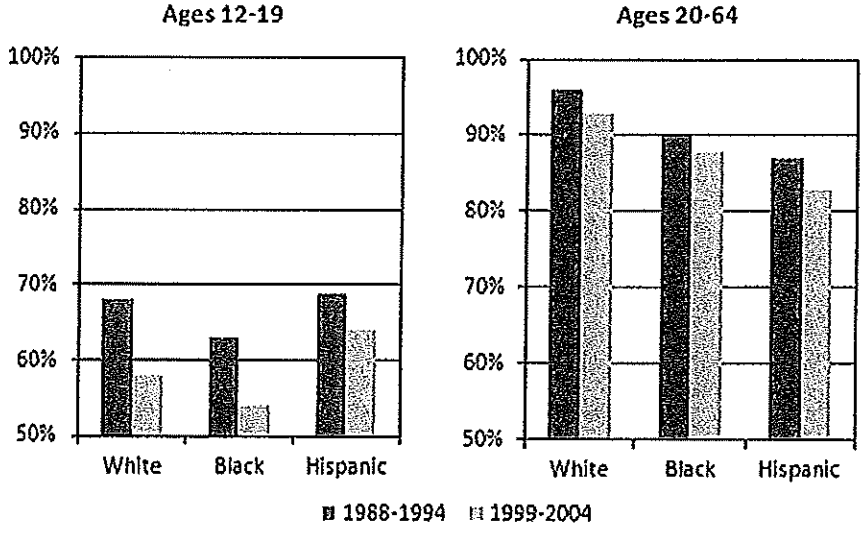
Can parents use fluoridated water to mix with infant formula?
Yes, parents can use fluoridated tap water for preparing infant formula. However, if your child is consuming only infant formula mixed with fluoridated water, there may be an increased chance for your child's teeth to have mild dental fluorosis. To lessen this chance, parents may choose to use low-fluoride bottled water to mix infant formula. These bottled waters are labeled as deionized, purified, demineralized, or distilled.

Can people with kidney disease or diabetes drink fluoridated water?
While studies addressing this issue are limited, a recent review did not find any evidence that consuming fluoridated water presents any health risk for people with chronic kidney disease. Similarly, a recent review of fluoride in drinking water did not identify any studies that linked drinking water with fluoride at optimal levels to prevent tooth decay with negative health effects among people with diabetes. CDC and other health organizations constantly review the scientific literature and safety evidence for information that might indicate a need for closer study or additional research.

How can I find out if my water is fluoridated?
If you have questions about whether your community has fluoridated water, you may call your local public water utility. Information about the amount of fluoride in your community's drinking water is available at http://apps.nccd.cdc.gov/MWF/Index.asp if you live in one of the states that provide this information.

Conclusion
Community water fluoridation continues to be effective in preventing tooth decay. Because of the dramatic decline in tooth decay over the past 65 years, CDC named community water fluoridation one of 10 great public health achievements of the 20th century.

Table 1: Percent of Americans who have ever experienced tooth decay in permanent teeth



Source: CDC National Health and Nutrition Examination Survey, 2007